

**CLAIM AMENDMENTS**

This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims**

1-14. (Canceled)

15. (Currently Amended) A method for creating, maintaining, and releasing sessions between ~~connecting a~~ plurality of customer premises equipment (CPE) and ~~to a service providers~~ via an Asynchronous Transfer Mode (ATM) access node, the method comprising:

connecting one or more CPEs to the ATM access node via a network termination (NT) point;

establishing a permanent virtual connection ~~plurality of communication sessions between the ATM access node and each the NT point of a plurality of customer premises equipment;~~

establishing a tunneling protocol integrated with a signaling protocol over the permanent virtual connection between the ATM access node and the NT point;

forming a virtual connection between the ATM access node and a service provider of choice on receipt of a request for a new session from the customer premise equipment indicating the service provider of choice, wherein only one

virtual connection is formed between the ATM access node and each service provider; and

~~connecting the plurality of communication sessions to the service provider over the same virtual connection; and~~

at the ATM access node, performing routing between the customer premises equipment and the service provider using routing information provided by the signaling protocol~~via the virtual connection.~~

16. (Previously Presented) The method of claim 15, wherein the ATM node comprises an access server function.

17. (Currently Amended) The method of claim 16, wherein the access server function is a provided on a dedicated network element.

18. (Previously Presented) The method of claim 16, wherein the access server function is integrated into or co-located with an ATM switch.

19. (Previously Presented) The method of claim 16, wherein the access server function comprises a Digital Subscriber Line Access Multiplexer (DSLAM).

20. (Previously Presented) The method of claim 15, wherein the virtual connection comprises a permanent virtual connection.

21. (Previously Presented) The method of claim 15, wherein the virtual connection comprises a switched virtual connection.

22. (Previously Presented) The method of claim 15, wherein the service provider is an Internet service provider (ISP).

23. (Previously Presented) The method of claim 15, wherein the service provider is a content provider.

24. (Previously Presented) The method of claim 15, wherein the service provider is a corporate network server.

25. (Currently Amended) The method of claim 15, wherein one or more of the communication sessions between the customer premises equipment and the ATM node are established via a the respective permanent virtual connection formed between the ATM node and a the respective network termination point associated with each customer premises equipment.

26. (Currently Amended) The method of claim 15, further comprising:

provisioning a pool of permanent virtual connections between the ATM node and the service provider; and

selecting a permanent virtual connection from the pool of permanent virtual connections to be used for a plurality of the consumer premises equipment, the selected permanent virtual connection being used by the ~~connecting~~ routing step to connect communication sessions to the service provider.

27. (Canceled)

28. (Currently Amended) The method of ~~claim 27~~ claim 15, wherein the tunneling protocol comprises the Layer 2 Tunneling Protocol (L2TP).

29. (Currently Amended) The method of claim 15, further comprising:

receiving at the ATM node a selection of the service provider from a customer premises equipment via ~~an~~ the integrating signaling protocol.

30. (Previously Presented) The method of claim 15, further comprising:

selecting the service provider by signaling from the ATM node.

31. (Currently Amended) A network element for connecting each of several customer premises equipment (CPE) to a service provider, the network element comprising:

a network termination (NT) point for connecting one or more CPEs to the network element and establishing a permanent virtual connection between the ATM access node and the NT point;

means for establishing a permanent virtual connection plurality of communication sessions between the network element and each NT point of a plurality of customer premises equipment;

means for establishing a tunneling protocol integrated with a signaling protocol over the permanent virtual connection between the network element and the NT point;

means for forming a virtual connection between the network element and a service provider of choice on receipt of a request for a new session from the customer premise equipment indicating the service provider of choice, wherein only one virtual connection is formed between the network element and each service provider; and

means for connecting the plurality of communication sessions to the service provider over the same virtual connection; and

means for ~~performing~~ routing between the customer premises equipment and the service provider of choice using the routing information provided by the signaling protocol ~~via the virtual connection~~.

32. (Currently Amended) The network element of claim 31, wherein the network element ~~is~~ executes an access server function.

33. (Currently Amended) The network element of claim 32, wherein the access server function is executed by a dedicated network element.

34. (Currently Amended) The network element of claim 32, wherein the access server function is ~~integrated into or co-located with~~ enabled on an ATM switch.

35. (Currently Amended) The network element of claim 32, wherein the ~~access server function comprises~~ network element is a Digital Subscriber Line Access Multiplexer (DSLAM).

36. (Previously Presented) The network element of claim 31, wherein the virtual connection comprises a permanent virtual connection.

37. (Previously Presented) The network element of claim 31, wherein the virtual connection comprises a switched virtual connection.

38. (Previously Presented) The network element of claim 31, wherein the service provider is an Internet service provider (ISP).

39. (Previously Presented) The network element of claim 31, wherein the service provider is a content provider.

40. (Previously Presented) The network element of claim 31, wherein the service provider is a corporate network server.

41. (Currently Amended) The network element of claim 31, wherein the means for establishing is configured to establish one or more ~~of the~~ communication sessions ~~between the customer premises equipment and the network element~~ via a the permanent virtual connection formed between the network element and a ~~the~~ respective network termination point associated with each customer premises equipment.

42. (Currently Amended) The network element of ~~claim 31~~ claim 41, further comprising:

means for provisioning a pool of permanent virtual connections between the network element and the service provider; and

means for selecting a permanent virtual connection from the pool of permanent virtual connections to be used for a plurality of the consumer premises equipment, the selected permanent virtual connection being used by the means for ~~connecting~~ routing to connect communication sessions to the service provider.

43. (Canceled)

44. (Currently Amended) The network element of ~~claim 43~~ claim 31, wherein the tunneling protocol comprises the Layer 2 Tunneling Protocol (L2TP).

45. (Currently Amended) The network element of claim 31, further comprising:

means for receiving at the network element a selection of the service provider from a customer premises equipment via ~~an~~ the integrating signaling protocol.

46. (Previously Presented) The network element of claim 31, further comprising:

means for selecting the service provider by signaling from the network element.



47. (New) The method of claim 15, wherein the tunneling protocol combines the sessions and signaling from all active CPEs connected to the NT point into a single tunnel from the NT point to the ATM access node.

48. (New) The method of claim 15, wherein the NT point comprises a LAN interface configured automatically using a Dynamic Host Configuration Protocol (DHCP).

49. (New) The method of claim 15, wherein the NT point comprises an ATM interface configured using a Interim Local Management Interface (ILMI) protocol.